DOCUMENT RESUME

ED 472 612 EA 032 170

AUTHOR	Belfield, Clive R.
TITLE	Modeling School Choice: A Comparison of Public, Private-Independent, Private-Religious, and Home-Schooled Students. Occasional Paper.
INSTITUTION	Columbia Univ., New York, NY. National Center for the Study of Privatization in Education.
REPORT NO	OP-49
PUB DATE	2002-06-00
NOTE	20p.
AVAILABLE FROM	Teachers College, Columbia University, Box 181, 230 Thompson Hall, 525 West 120th Street, New York, NY 10027-6696. Tel: 212-678-3259; Fax: 212-678-3474; e-mail: ncspe@columbia.edu; Web site: http://www.ncspe.org.
PUB TYPE	Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Comparative Analysis; Economic Factors; Elementary Secondary Education; *Home Schooling; Nontraditional Education; *Private Education; *Private Schools; Public Education; *Public Schools; School Choice

ABSTRACT

U.S. students now have four choices of schooling: public schooling, private-religious schooling, private-independent schooling, and home-schooling. Of these options, home-schooling is the most novel. Since legalization across the states in the last few decades, it has grown in importance and legitimacy as an alternative choice. Thus, it is now possible to investigate the motivation for home-schooling, relative to the other schooling options. Two recent large-scale datasets were used in this paper to assess the school enrollment decision: the first is the National Household Expenditure Survey (1999), and the second is microdata on test-takers of the student achievement test in 2001. Results show that, generally, families with home-schoolers have characteristics similar to those with children at other types of school, but mothers' characteristics--specifically, their employment status--have a strong influence on the decision to home-school. Plausibly, religious belief has an important influence on the schooling decision, not only for Catholic students, but also for those of other faiths. An appendix contains a table of frequencies for independent variables. (Contains 23 references and 3 tables.) (Author/RT)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 472 612

Occasional Paper No 49

National Center for the Study of Privatization in Education

Teachers College, Columbia University

Modeling School Choice: A Comparison of Public, Private–Independent, Private–Religious and Home-Schooled Students

June 2002

Clive R. Belfield

cb2001@columbia.edu

National Center for the Study of Privatization in Education

Teachers College, Columbia University

525 W120th Street

New York NY 10027-6696

www.ncspe.org

Abstract US students now have four choices of schooling: public schooling, private–religious schooling, private–independent schooling, and home-schooling. Of these, home-schooling is the most novel: since legalization across the states in the last few decades, it has grown in importance and legitimacy as an alternative choice. Thus, it is now possible to investigate the motivation for home-schooling, relative to the other schooling options. Here, we use two recent large-scale datasets to assess the school enrollment decision: the first is the National Household Expenditure Survey (1999), and the second is micro-data on SAT test-takers in 2001. We find that, generally, families with home-schoolers have similar characteristics to those with children at other types of school, but mother's characteristics – specifically, her employment status – have a strong influence on the decision to home-school. Plausibly, religious belief has an important influence on the schooling decision, not only for Catholic students, but also those of other faiths.

EA 032 170

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

C. BELFIELD

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

BEST COPY AVAILABLE

The Occasional Paper Series of the National Center for the Study of Privatization in Education (NCSPE) is designed to promote dialogue about the many facets of privatization in education. The subject matter of the papers is diverse, including research reviews and original research on vouchers, charter schools, home schooling, and educational management organizations. The papers are grounded in a range of disciplinary and methodological approaches. The views presented in these papers are those of the authors and do not necessarily reflect the official views of the NCSPE.

If you are interested in submitting a paper, or wish to learn more about the NCSPE, please contact:

NCSPE, Box 181,
Teachers College, Columbia University,
525 W. 120th Street,
New York, NY 10027-6696
www.ncspe.org
email: ncspe@columbia.edu

1. Introduction

A sense of disaffection with public schooling – both its effectiveness and efficiency – has been emphatically catalogued by academic economists (Hanushek, 1998; Hoxby, 2000; Friedman, 1993). The general population is somewhat more ambivalent (Moe, 2001), and indeed the proportions of students in private schools have remained stable over recent decades (Kenny and Schmidt, 1994). However, private schooling – either religious or sectarian – is not the only outlet for those dissatisfied with public schooling: home-schooling is now a viable option.

The recent growth and development of home-schooling has been described in detail by numerous authors (Lines, 2000; Welner and Welner, 1999; Hammons, 2001; Somerville, 2000; Stevens, 2001; Bauman, 2002). These authors emphasize the legal and civic aspects of home-schooling, but there has been little quantitative assessment or economic treatment. This is surprising: home-schooling represents an extreme form of education privatization, affecting the expenditure patterns, time allocation, and labor force participation of the families involved. Furthermore, home-schooling extends the school choice decision to four alternatives.

Here, we report the determinants of school choice decisions by US families, contrasting each schooling option. Such school choices are easily expressed using economic calculus. For example, home-schooling may be more effective than public schools, and possibly less costly (if there are either high transport costs or additional expenditures mandated by schools, e.g. uniforms, learning materials). Similarly, home-schooling may be more effective than private schools (if these are 'elitist', and appear hostile to outsiders), and possibly less costly (with no direct tuition fees). More generally, home-schooling may meet the needs of families with particular educational preferences that are not catered for by available institutions (typically for morality-based schooling, James, 1987). In this case the appropriate comparison is between home-schooling and religious schools.

Although precise numbers are hard to obtain, NCES (2001) estimates – based on weighted interpretation of the NHES99 – indicate approximately 850,000 home-schoolers aged from 5 to 17 (1.7% of all US students). And, the number of home-schooled children

in the US is growing (Lines, 2000): using the CPS, NHES96, and NHES99, Bauman (2002) charts the number of home-schoolers at: 356,000 in 1994, 636,000 in 1996, and 791,000 by 1999. This figure is still small compared to the 5.1 million students in private schools, but home-schooling has only been legal since the 1970s. Moreover, home-schooling might be a possibility for all families during at least some part of childrearing, with potentially important ramifications. For parents, allocations of time within the household may be changed and labor market supply reduced; consumption of educational materials will be affected, as will consumption of public goods and housing (via attenuated Tiebout effects). For children, academic achievement may be affected, insofar as parents differ as adequate substitutes for trained teachers. Also likely to be affected are children's welfare; their social skills; and their labor market participation (if home-schoolers are screened differently by employers). The motivation to home-school therefore merits investigation.

Our inquiry is structured as follows. In Section 2 we model the school choice decision across school types. In Section 3 we describe the datasets available to us. In Section 4 we report the empirical evidence on the determinants of the school choice decision. Section 5 concludes, referring back to the relevance of home-schooling within the current system of US schooling.

2. *The Economics of School Choice*

Prior research on school choice in the US has mainly focused on binary options: students decide to exit public schools for the single alternative, typically held to be Catholic schooling (but see Figlio and Stone, 1999). However, this stylization elides religious and non-religious schooling, even though these are unlikely to be close substitutes. It is also out-of-date, given: changes in the teaching staff and student composition in religious schools (on the evolution of Catholic schooling, see Sander, 2001; Grogger and Neal, 2000); the growth of other types of private school; and greater choice in the public sector (e.g. charter schooling). Instead, the school enrollment decision is best articulated as a four-way choice: public schooling, private–religious schooling, private–independent schooling, and home-schooling.

A straightforward way to infer school choice motivation is to compare tabulations of characteristics by school type.[1] For home-schooling, aggregate comparisons show families that are: more likely to be white and non-Hispanic; have income levels comparable to the national average (but with a more leptokurtic distribution); and have parents who were more highly educated than the average for the US. It is not necessarily the case that families who decide to home-school possess highly idiosyncratic attributes (see Bauman, 2002; NHES, 2001). However, we are interested in the more general question as to what motivates the decision to choose a particular school type.

In deciding between the schooling options, households can be assumed to maximize utility. Neal (1997) specifies a utility function for household *i* where:

$$(1) \qquad U_i = U(Y_i, EC_i, M_i)$$

In (1), Y denotes the educational outcomes from schooling; EC denotes the unobserved consumption goods from schooling (e.g. religiosity, dutifulness to parents); and M denotes a composite commodity with a price normalized to one.[2] We generalize Neal's

[1] Another method for inference is to look at what schools are chosen by families whose choice set is expanded, e.g. through voucher programs. This literature has been summarized by Teske and Schneider (2000).

[2] We derive the idea of dutifulness via home-schooling from Adam Smith: "Do you wish to educate your children to be dutiful [?]… educate them in your own house. From their parent's house they may, with

(1997) choice model to include the j=4 different types of schooling where p is public schooling, d is private–independent schooling, r is private–religious schooling, and h is home-schooling. Educational outcomes are therefore determined across each of the choices as:

(2) $Y_{ip} = \mathbf{X}_i\hat{a}_p + \acute{\imath}_i$

(3) $Y_{id} = \mathbf{X}_i\hat{a}_d + \mathring{a}_d + \tilde{a}_d + \acute{\imath}_i$

(4) $Y_{ir} = \mathbf{X}_i\hat{a}_r + \mathring{a}_r + \tilde{a}_r + \acute{\imath}_i$

(5) $Y_{ih} = \mathbf{X}_i\hat{a}_h + \mathring{a}_h + \tilde{a}_h + \acute{\imath}_i$

In (2)–(5), **X** denotes a vector of input and control variables. The $\mathring{a}_j$ parameters identify the match between household i and the selected school type; it is assumed that $E(\mathring{a}_j|\mathbf{X}_i)=0$. The $\tilde{a}_j$ parameters represent the mean outcome effect for school type j relative to public schooling. The $\acute{\imath}_i$ term is a household effect (error term) and again by assumption $E(\acute{\imath}_i|\mathbf{X}_i)=0$. Such modeling is necessary to estimate the treatment effects across school types, as well as exogenous instruments that may serve to identify the school choice match (see Evans and Schwab, 1995). However, our inquiry is restricted, first, to specifying the variables to be included in **X**, and then, second, to giving some indication of the match between household types and school types ($\mathring{a}_j$). Such inquiry may therefore guide the search for appropriate instruments for the school choice decision (see the discussion in Card, 1999).

We therefore estimate a multinomial logit model, where school choice is a function of the characteristics of the household, the child, the mother/father, and the local community:

(6) Pr(Choice j=1..4) = f(**Household**, **Child**, **Mother/father**, **Community**)

Our aim is to identify the statistical and substantive characteristics that motivate the choice of one school type over another. Variables capturing the child's characteristics

---

propriety and advantage, go out every day to attend public schools: but let their dwelling be always at home... Surely no acquirement, which can possibly be derived from what is called a public education, can make any sort of compensation for what is almost certainly and necessarily lost by it. Domestic education is the institution of nature; public education, the contrivance of man. It is surely unnecessary to say, which is likely to be the wisest" (2000 [1759], VI.II.13).

may indicate which children (in terms of ability, gender, and maturity) favor particular school types. Parental variables may capture not only intergenerational transfers of educational attributes, but also parental capacity for home-schooling. Of particular interest are the household and community characteristics that influence the school choice decision, and their relative importance across each school type. The household variables capture the resources available within the home for educational purposes, as well as social differences across students (see Lareau, 2000). The community variables are likely to capture the local public resources available for schooling, and the importance of neighborhood in schooling decisions. This estimation therefore yields several policy-useful questions. For example, how important are household compositions (such as two-parent families) compared to the education level of the parents? Also, do families with special learning needs seek home-schooling as an alternative to public schools, rather than private schools? What school types do students of religions other than Catholicism choose? Using two similar datasets, we are able to estimate equation (6) to answer such questions, as well as triangulate the results.

3 *Data*

Two recent datasets are available to estimate equation (6). These are the National Household Expenditure Survey (NHES99) and micro-data from SAT test-participants in 2001 (ETS01).

NHES99 is a random-digit dialing telephone survey, with a nationally representative sample of all civilian, non-institutionalized US persons. Screening interviews were administered to 57,278 households (74% response rate), and then parental interviews were conducted, where children were found to be in the household (88% response rate post-screening). The relevant sample of parent respondents is 17,640. To compensate for bias (arising from lack of telephone, non-response, or ethnicity), weights are applied to the data. Whereas public and private school distinctions are relatively straightforward, the identification of home-schooling is less clear. Here, home-schooling is identified using the NCES (2001) definition, which is derived from questions: 'Is child being schooled at home?'; 'Is child getting all of his/her instruction at home?' and 'How many hours each week does child usually go to school for instruction?'; and 'What are the main reasons you decided to school child at home?' So, home-schooling is identified where the child is being schooled at home; where any public schooling did not exceed 25 hours per week; and where the child is not being schooled at home for temporary reasons of health. This definition yields 270 (1.5%) students who are home-schooled (unweighted number). The rest of the sample is: 1,530 (8.7%) students who attend religious school; 560 (3.2%) who attend a private–independent school; and 15,280 (86.6%) who attend public schools.

ETS01 is the population of individuals who took the SAT college-entry examination in 2001. Before taking the SAT, each individual is required to complete a background questionnaire which requests information about the household, the individual, and the family. This information is similar to, but not exactly the same as, the information collected in NHES99. One advantage of the ETS01 data, for instance, is that individuals report their religion. For the characteristics of the community, county-level data are merged into the core dataset through the individual's school location. The county-level variable is the proportion of children aged 5 to 17 who are defined as 'poor'

in the Census, taken from the US Census Small Area Income and Poverty Estimates 1998, State and County 1998 (www.census.gov/hhes/saipe). Importantly, each test-participant declares their type of schooling; and in 2001 the questionnaire included the option 'home-schooling'.[3] Based on the self-reported school types, the sample includes: 4,653 (0.01%) students who are home-schooled; 109,135 (11.3%) students who attend religious school; 32,469 (3.4%) who attend a private–independent school; and 822,967 (84.9%) who attend public schools.

Both datasets are recent, large-scale, and include an array of similar variables; they are also sufficiently up-to-date to include a home-schooling indicator (although we recognize that home-schoolers may be relatively disinclined to complete government surveys). The important difference is that the ETS01 data refer essentially to only one cohort of students, aged between 14 and 18 in 2001, who are attempting to gain entry to college. Given the relative novelty of home-schooling, those who appear in ETS01 are the 'first-movers' into home-schooling. Moreover, school choice and desire to gain entry to college may be endogenously determined. Notwithstanding, the fact that the ETS01 test-participants are all of similar ability, ages and motivations, may serve as a control for unobservable characteristics motivating the school choice decision. Thus, the school choice decision can be interpreted more specifically using the ETS01 data: given a student who wishes to go to college, what factors motivate the choice of school type?

[3] The option to declare as a home-schooler was also available to test-participants in the year 2000. However, based on personal communications with ETS staff, we were persuaded that the home-schooling indicator for 2000 may not be reliable.

4. *Estimation of School Choice*

The multinomial logit estimates for equation (6) are given in Tables 1 and 2, using NHES99 and ETS01. The reported coefficients are marginal effects, i.e. differentiation of the dependent variable with respect to the independent variable (or transformation of a dummy variable from zero to one). Frequencies for each of the independent variables are given in Appendix Table A1.

The results for both the NHES99 and ETS01 are plausible and suggestive (and these results correspond broadly with those of Figlio and Stone, 1999). For household characteristics, common to both equations is a measure of wealth, either the log of family income, or dummy variables for home-ownership, a high-income family, or the expectation of financial aid at college. The results across the two surveys are consistent: family financial resources are strongly positively correlated with private schooling as opposed to public schooling, and home schooling is adopted inversely with family resource levels. Interestingly, these financing variables show the same magnitude of effect for both independent and religious private schooling.

The NHES99 includes further details about the household: larger numbers of adults in the household are negatively associated with religious schooling, being associated with a shift toward public schooling. However, more children in the household are associated essentially with a switch between private–independent and home-schooling.

Student characteristics play a strong role in influencing the school choice decision. However, the results are discrepant in some cases. So, the NHES99 shows male children are less likely to attend private-religious school, whereas the ETS01 estimation indicates the opposite. For ethnicity, the results are more in accord: both African American and Latino students are more likely to attend public school, and least likely to attend private religious school; Asian students are spread more evenly across the options, although they too are least likely to attend private religious school. Similarly, private-religious schools are least likely to enroll US (immigrant) citizens. The age variable in the NHES99 survey shows that private schools – particularly religious ones – primarily serve younger students; home-schooling appears to be prevalent across all ages.

Of special interest in the debate about choice is the disability of the child: opponents of choice have argued that private schools will subtly dissuade children with additional learning needs from enrollment (see the discussion in Howell and Peterson, 2002). For the private independent schools, there is no evidence of such dissuasion: students with disabilities or special learning needs are more likely to be in these schools. Again, home-schooling appears as a neutral option, whereas (according to NHES99, but not ETS01) private-religious schools do enroll fewer disabled students. Finally, the ETS01 data includes information on religious status. This variable has a strong effect: students who profess any religion are more likely to be in private-religious schooling, but less likely to be in private-independent schooling. The results for home-schooling are mixed: those following the Catholic faith are less likely to be home-schooled, but other religions do dispose the family toward this choice. Overall, however, the marginal coefficients for religion as a determinant of school choice is between 2 and 10 times that of any other factors.

Maternal characteristics are identified by education levels, and by whether the mother is employed or not (NHES99 only). Relative to mothers who had not obtained a high school equivalency, the effect of more education is to switch enrolment away from public schools toward the other three options. The NHES99 results show higher maternal education is a strong influence on home-schooling, and this finding is to some extent supported by the ETS01 estimation. Again, however, these educational influences are strongest in causing a switch toward private religious schooling. Similarly, if the mother is employed, the child is much more likely to be in public school, with the other three options being equally affected positively.

Finally, Tables 1 and 2 show the effects of community characteristics. Higher rates of poverty are more likely to encourage private schooling (presumably amongst those who are not below the poverty line themselves). (Median household income at the county level – an alternative community income measure for the ETS01 survey – is highly correlated with the poverty rate, and so is omitted from the analysis). Plausibly, home schooling is less common in the North East, and urban areas; these are areas where private schooling options are more common.

Before concluding, it is worthwhile noting some of the possible caveats to these findings. The first is the difficulty of measuring home-schooling, and finding out precisely what type of educational choice it represents. Some parents may temporarily home-school, e.g. for a single academic year; others may home-school part-time, e.g. enrolling only half-days at public school. For the NHES99 data, there is a reasonably agreed definition for home-schooling, but the ETS01 data includes self-reports of school type. The second caveat is that the sample of home-schoolers is too small; certainly, more efficient estimates would be obtained with larger samples (both absolute and relative to the high proportions enrolled in the other school types). Nevertheless, the ETS01 data includes over 5,000 home-schoolers in its sample. Finally, a third possible caveat is that the multinomial logit estimation may be improperly conceived. However, testing for the 'irrelevance of independent assumptions' – by pooling religious and independent students – does not materially influence the coefficients (on the other two school types).

5 *Conclusion*

Here, a simple model of choice is used to explore the determinants of school choice, represented through the four options now available to parents. The aim has been modest: to see what factors are important when school choice is being decided on. In this respect the results are not surprising.

However, the evidence has a more purposeful application. First, it shows how different factors motivate different choices. So, families are more disposed toward home-schooling and away from private-independent schooling when there are more children in the house; but they are more disposed away from home schooling and toward public schooling when the mother works. Income variables and community poverty rates tend to sway parents toward private schooling, but not toward home-schooling. Second, the evidence can elucidate which type of schooling is most divergent from the public school norm, i.e. which school type has the strongest 'independent' characteristics. Based on Table 1 and 2, it appears that the families who use private-religious schools have especial characteristics, strongly attracting them to this choice. Therefore, it is the religious schools – and not the home-schoolers – that appear the 'most different' from public schools, at least along the vector of characteristics for which there are data. Finally, this inquiry may be useful for directing the search for instrumental variables for school choice. Religious belief appears as the most substantively powerful influence in choosing private schooling. In magnitude, the influence of religious persuasion far outweighs that of family resources or maternal education levels. Notwithstanding the criticisms leveled at such a variable (Altonji et al., 1999), it may still be appropriate to model the supply of religious schooling within treatment equations such as (2)-(5) above. For home-schooling decisions, instrumental variables might be derived from the opportunities for, or the need for, mothers to enter the labor market.

Acknowledgements

The authors appreciate the effort of Drew Gitomer and the Educational Testing Service for making the SAT data available.

References

Bauman, KJ. 2002. Home-schooling in the United States: Trends and characteristics. *Education Policy Analysis Archives*, **10** (26).

Card, D. 1999. The causal effect of education on earnings. In Ashenfelter O and D Card. (Eds). *Handbook of Labor Economics Volume 3C.* North-Holland: New York.

Evans, WN and RM Schwab. 1995. Finishing high school and starting college: do Catholic schools make a difference? *Quarterly Journal of Economics*, **CX**, 941–974.

Figlio, DN and JA Stone. 1999. Are private schools really better? *Research in Labor Economics*, 18, 115–140.

Friedman, M. 1993. Public schools, make them private. *Education Economics*, **1**, 25–45.

Grogger, J and D Neal. 2000. Further evidence on the benefits of Catholic secondary schooling. *Brookings–Wharton Papers on Urban Affairs*. Brookings: Washington, DC.

Hammons, CW. 2001. School@home. *Education Next*, Winter, 48–55.

Hanushek, EA. 1998. Conclusions and controversies about the effectiveness of schools. *Federal Reserve Bank of New York Economic Policy Review*, **4**, 1–22.

Hoxby, CM. 2000. Does competition among public schools benefit students and tax–payers? *American Economic Review*, **90**, 1209-1238.

Kenny, LW and AB Schmidt. 1994. The decline in the number of school districts in the US: 1950-1980. *Public Choice*, **79**, 1–18.

Laneau, 2000. *Home Advantage.* Rowman & Littlefield: New York.

Lines, P. 2000. Home-schooling comes of age. *The Public Interest*, **140**, 74–85.

Ludwig, J, Ladd, HF, and GJ Duncan. 2001. Urban poverty and educational outcomes. *Brookings-Wharton Papers on Urban Affairs*, pp. 147-202.

Moe, TM. 2001. *Schools, Vouchers and the American Public.* Brookings Institution: Washington.

National Center for Education Statistics (NCES). 2001. Homeschooling in the United States: 1999. http://nces.ed.gov/

Neal, D. 1997. The effects of Catholic secondary schooling on educational achievement. *Journal of Labor Economics,* 15, 98–123.

Rudner, LM. 1999. Scholastic achievement and demographic characteristics of home-school students in 1998. *Education Policy Analysis Archives*, 7, 8.

Sander, W. 2001. The effects of Catholic schools on religiosity, education, and competition. Occasional Paper, National Center for the Study of Privatization in Education, www.ncspe.org.

Smith, A. 2000. [1759]. *The Theory of Moral Sentiments.* Prometheus Books: New York.

Somerville, S. 2001. Legalizing home-schooling in America. A quiet but persistent revolution. Mimeo. Home-school Legal Defense Association.

Stevens, ML. 2001. *Kingdom of Children. Culture and Controversy in the Home-Schooling Movement.* Princeton University Press: Princeton.

Teske, P and M Schneider. 2000. What research can tell policymakers about school choice. *Journal of Policy Analysis and Management*, **20**, 609-631.

Welner, KM and K Welner. 1999. Contextualising home-schooling data. A response to Rudner. *Education Policy Analysis Archives*, 7, 13.

Table 1
Determinants of the Decision to Home-School or to Enroll at Religious or Non-Religious Private School versus Public Schooling: NHES Data
(Multinomial Logit Estimation Marginal Effects)

	Public School		Home School		Private Religious School		Private Independent School	
	Marginal Coeff.	(SE)	Marginal Coeff.	(SE)	Marginal Coeff.	(SE)	Marginal Coeff.	(SE)
Household characteristics:								
Owns home	-0.0228	(0.0063)***	0.0000	(0.0018)	0.0240	(0.0018)***	-0.0011	(0.0018)
Ln (Family Income)	-0.0364	(0.0046)***	-0.0006	(0.0009)	0.0284	(0.0009)***	0.0085	(0.0009)***
Adults[a]: 2 (both parents)	0.0134	(0.0081)*	0.0039	(0.0026)	-0.0123	(0.0026)***	-0.0050	(0.0026)*
Adults[a]: 2 (one parent)	0.0108	(0.0103)	0.0045	(0.0057)	-0.0111	(0.0057)*	-0.0042	(0.0057)
Adults[a]: 3 or more	0.0149	(0.0084)*	0.0049	(0.0038)	-0.0156	(0.0038)***	-0.0041	(0.0038)
Siblings for child	-0.0020	(0.0026)	0.0029	(0.0006)***	0.0009	(0.0006)	-0.0018	(0.0006)***
Student's characteristics:								
Male	0.0033	(0.0047)	0.0001	(0.0013)	-0.0041	(0.0013)***	0.0007	(0.0013)
Ethnicity[b]: African Amer.	0.0496	(0.0060)***	-0.0028	(0.0022)	-0.0330	(0.0022)***	-0.0139	(0.0022)***
Ethnicity[b]: Asian	0.0128	(0.0122)	-0.0002	(0.0052)	-0.0113	(0.0052)**	-0.0013	(0.0052)
Ethnicity[b]: Hispanic	0.0489	(0.0062)***	-0.0038	(0.0020)*	-0.0289	(0.0020)***	-0.0162	(0.0020)***
Born outside US	0.0195	(0.0112)*	-0.0031	(0.0028)	-0.0158	(0.0028)***	-0.0006	(0.0028)
Age[c]: 10 to 12 years	0.0108	(0.0058)*	0.0004	(0.0019)	-0.0062	(0.0019)***	-0.0050	(0.0019)***
Age[c]: 13 to 18 years	0.0315	(0.0054)***	0.0015	(0.0017)	-0.0262	(0.0017)***	-0.0068	(0.0017)***
Special Learning Needs	0.0123	(0.0058)**	-0.0004	(0.0015)	-0.0145	(0.0015)***	0.0027	(0.0015)*
Mother's characteristics:								
Educ.[d]: High School	-0.0257	(0.0137)*	0.0241	(0.0081)***	0.0046	(0.0081)	-0.0031	(0.0081)
Educ.[d]: Some College	-0.0554	(0.0177)***	0.0370	(0.0136)***	0.0169	(0.0136)	0.0015	(0.0136)
Educ.[d]: (Higher) Degree	-0.1131	(0.0213)***	0.0473	(0.0170)***	0.0420	(0.0170)**	0.0239	(0.0170)
Mother: Employed	0.0409	(0.0064)***	-0.0161	(0.0027)***	-0.0121	(0.0027)***	-0.0128	(0.0027)***

16
BEST COPY AVAILABLE

Table 1 (Contd)

Community characteristics:				
ZIP poverty line[e]: >10%	-0.0086 (0.0070)	0.0004 (0.0017)	0.0069 (0.0017)***	0.0013 (0.0017)
ZIP Hisp-Black[f]: 0–15%	0.0487 (0.0091)***	0.0037 (0.0028)	-0.0320 (0.0028)***	-0.0204 (0.0028)***
ZIP Hisp-Black[f]: 16–40%	0.0126 (0.0077)	0.0077 (0.0040)*	-0.0150 (0.0040)***	-0.0053 (0.0040)
Region[g]: North East	-0.0534 (0.0106)***	-0.0041 (0.0019)**	0.0450 (0.0019)***	0.0125 (0.0019)***
Region[g]: South	-0.0315 (0.0075)***	0.0011 (0.0018)	0.0267 (0.0018)***	0.0037 (0.0018)**
Region[g]: Midwest	-0.0473 (0.0104)***	-0.0030 (0.0017)*	0.0565 (0.0017)***	-0.0061 (0.0017)***
Area[h]: Urban	-0.0651 (0.0063)***	-0.0020 (0.0016)	0.0536 (0.0016)***	0.0135 (0.0016)***
Area[h]: Suburban	-0.0346 (0.0128)***	-0.0006 (0.0019)	0.0338 (0.0019)***	0.0014 (0.0019)
Predicted Prob.	0.9090	0.0086	0.0623	0.0200
Pseudo R Squared		0.0992		
Log Likelihood		7338.80		
Wald Chi2 (75)		1071.57		
N		*17640*		

Notes: Parent Sample, National Household Education Survey (NHES, 1999). Robust standard errors in parentheses. [a]Default adults: 1 parent only. [b]Default ethnicity: white. [c]Default age: 5–9 years. [d]Default education level: less than High school. [e]Default ZIP poverty line: >19%. [f]Default ZIP Hisp-Black: >40%. [g]Default region: west. [h]Default area: rural. ***significance at 0.01 level; **significance at 0.05 level; *significance at 0.10 level.

Table 2
Determinants of the Decision to Home-School or to Enroll at Religious or Non-Religious Private School versus Public Schooling: ETS01
(Multinomial Logit Estimation Marginal Effects)

	Public School		Home School		Private Religious School		Private Independent School	
	Marginal Coeff.	(SE)	Marginal Coeff.	(SE)	Marginal Coeff.	(SE)	Marginal Coeff.	(SE)
Household characteristics:								
Family income > $100,000	-0.0347	(0.0026)***	-0.0020	(0.0003)***	0.0252	(0.0023)***	0.0116	(0.0012)***
Financial aid[a]	0.0349	(0.0024)***	0.0001	(0.0003)	-0.0134	(0.0021)***	-0.0215	(0.0013)***
Student's characteristics:								
Male	-0.0130	(0.0020)***	0.0005	(0.0003)*	0.0105	(0.0018)***	0.0020	(0.0009)**
Ethnicity[b]: African Amer.	0.0205	(0.0034)***	-0.0027	(0.0003)***	-0.0097	(0.0032)***	-0.0081	(0.0013)***
Ethnicity[b]: Asian	0.0079	(0.0040)**	-0.0025	(0.0003)***	-0.0095	(0.0035)***	0.0041	(0.0019)**
Ethnicity[b]: Hispanic	0.0194	(0.0034)***	-0.0016	(0.0004)***	-0.0098	(0.0030)***	-0.0079	(0.0016)***
Born outside US	0.0615	(0.0039)***	-0.0020	(0.0006)***	-0.0503	(0.0034)***	-0.0092	(0.0020)***
Disability	-0.0158	(0.0037)***	-0.0007	(0.0004)*	0.0009	(0.0032)	0.0156	(0.0020)***
Religion[c]: Catholic	-0.1870	(0.0047)***	-0.0019	(0.0004)***	0.2017	(0.0047)***	-0.0128	(0.0009)***
Religion[c]: Other faiths	-0.0246	(0.0028)***	0.0026	(0.0004)***	0.0261	(0.0027)***	-0.0041	(0.0010)***
Mother's characteristics:								
Educ.[d]: High School	-0.0607	(0.0079)***	0.0075	(0.0044)*	0.0505	(0.0065)***	0.0027	(0.0033)
Educ.[d]: Some College	-0.0811	(0.0077)***	0.0100	(0.0045)**	0.0558	(0.0060)***	0.0153	(0.0037)***
Educ.[d]: (Higher) Degree	-0.1245	(0.0074)***	0.0082	(0.0035)**	0.0810	(0.0060)***	0.0352	(0.0043)***

Table 2 (Contd)

Community characteristics:				
County poverty rate[e]	-0.0031 (0.0001)***	-0.0000 (0.0000)	0.0025 (0.0001)***	0.0006 (0.0001)***
Region[f]: North East	-0.0135 (0.0029)***	-0.0013 (0.0004)***	0.0033 (0.0025)	0.0114 (0.0015)***
Region[f]: South	0.0123 (0.0028)***	0.0007 (0.0004)*	-0.0236 (0.0024)***	0.0106 (0.0014)***
Region[f]: Midwest	-0.0403 (0.0043)***	0.0011 (0.0006)*	0.0352 (0.0040)***	0.0040 (0.0020)**
Predicted Prob.	0.8856	0.0028	0.0887	0.0229
Pseudo R Squared		0.0966		
Log Likelihood		45062.90		
Wald Chi2 (51)		9636.54		
N		*969223*		

Notes: Education Testing Service (ETS, 2001). Robust standard errors in parentheses. [a]Dummy variable indicating student anticipates obtaining financial aid for higher education. [b]Default ethnicity: white. [c]Default: no religion (or preferred not to answer). [d]Default education level: less than High school. [e]Census data. [f]Default region: west. ***significance at 0.01 level; **significance at 0.05 level; *significance at 0.10 level.

Appendix Table A1
Frequencies for Independent Variables

	NHES99		ETS01	
	Mean	**(SD)**	**Mean**	**(SD)**
Household characteristics:				
Owns home	0.69		–	
Family income	49010.00	(31150.00)	–	
Adults: 2 (both parents)	0.53		–	
Adults: 2 (one parent)	0.08		–	
Adults: 3 or more	0.20		–	
Siblings for child	1.28	(0.34)	–	
Family income > $100,000	–		0.23	
Financial aid	–		0.74	
Student's characteristics:				
Male	0.51		0.45	
Ethnicity: African Amer.	0.16		0.11	
Ethnicity: Asian	0.03		0.08	
Ethnicity: Hispanic	0.18		0.09	
Born outside US	0.05		0.04	
Age: 10 to 12 years	0.23		–	
Age: 13 to 18 years	0.45		–	
Special learning needs	0.23		–	
Disability	–		0.08	
Religion: Catholic	–		0.24	
Religion: Other faiths	–		0.47	
Mother's characteristics:				
Educ.: High school	0.39		0.08	
Educ.: Some college	0.26		0.32	
Educ.: (Higher) degree	0.25		0.39	
Mother employed	0.67		–	
Community characteristics:				
ZIP poverty line: >10%	0.32		–	
ZIP Hisp-Black: 0–15%	0.51		–	
ZIP Hisp-Black: 16–40%	0.26		–	
County poverty line	–		17.85	(7.36)
County median income	–		43083.16	(10264.86)
Region: North East	0.17		0.32	
Region: South	0.39		0.35	
Region: Midwest	0.20		0.11	
Area: Urban	0.66		0.35	
Area: Suburban	0.13		0.52	
N	*17640*		*969223*	

BEST COPY AVAILABLE

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title:	Modeling School Choice: A Comparison of Public, Private-Independent, Private-Religious and Home-Schooled Students Occasional Paper No. 49 – National Center for the Study of Privatization in Education EA 032 170
Author(s):	Clive R. Belfield
Corporate Source:	Publication Date: June 2002

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1

☑

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) *and* paper copy.

The sample sticker shown below will be affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

Level 2A

☐

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2B

Level 2B

☐

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign here, → please

Signature: C Belfield	Printed Name/Position/Title: C BELFIELD, Assoc. Dir.
Organization/Address: Teachers College, Columbia Univ. 525 W120th Street, New York, NY 10027-6696	Telephone: 212 678-3351 FAX:
	E-Mail Address: CB2001@Columbia.edu Date: 1/6/03

(over)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, *or*, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

ERIC Clearinghouse on Educational Management
5207 University of Oregon
Eugene OR 97403-5207
Attn: Acquisitions

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
4483-A Forbes Boulevard
Lanham, Maryland 20706

Telephone: 301-552-4200
Toll Free: 800-799-3742
FAX: 301-552-4700
e-mail: ericfac@inet.ed.gov
WWW: http://ericfac.piccard.csc.com

EFF-088 (Rev. 2/2000)